

CLAIMS:

1. A method for encrypting a digital data stream in a transmission system that uses orthogonal codes for the modulation, wherein - a k^{th} transmitter constructs a k^{th} connection for the k^{th} digital data stream ($d^{(k)}$), - for the encryption, the digital data stream ($d^{(k)}$) of the transmitter is mixed with a spreading code that is assigned to this k^{th} connection,
 5 - different spreading codes ($g_1^{(k)}$, $g_2^{(k)}$... $g_H^{(k)}$) from a defined set (G_i) are assigned and - through the mixing a transmission signal ($s^{(k)}$) is produced, characterized in that the degree of encryption of the k^{th} digital data stream ($d^{(k)}$) is increased during the k^{th} connection through the allocation of • a sequence for the application of the different spreading codes ($g_1^{(k)}$, $g_2^{(k)}$... $g_H^{(k)}$) and/or a hop interval (I_{hop}).

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2. A method as claimed in claim 1, characterized in that a permutation function (S_i) defines the sequence of the application of the content of a set of spreading codes (G_i) by stating the position ($\{p_1, p_2 \dots p_M\}$).

15 3. A method for encrypting a digital data stream that is to be transmitted, wherein after the connection set-up, necessary parameters for the transmission and recovery are transmitted, characterized by the steps:

- communication of an encryption key (200) and thus:
- establishment (210) of a permutation function (S_i),
- 20 - establishment (220) of a set (G_i) of spreading codes, and/or
- establishment (230) of a hop interval (I_{hop}),

wherein the last three steps mentioned (210, 220, 230) can be carried out in any order.

25 4. A method for encrypting a digital data stream, characterized by the execution of a first permutation procedure (400) which contains a loop with the following steps:

- setting (410) of an interval (n) to "1";
- waiting (420) for the end of a predefined hop interval (I_{hop});
- increasing (430) the interval (n) by the value 1;
- carrying out a comparison (440) to see whether the current value of the

interval (n) is greater than the total number (M) of the elements of a permutation function (S_i) which states the positions of the spreading code (g_n) of a set (G_i) of spreading codes that is to be used for encrypting the digital data stream, wherein alternatively the following takes place:

- 5 - if the comparison has a positive result: resetting of the interval (n) to "1";
 - if the comparison has a negative result: equating the current spreading code (g_n) with the spreading code (g_{p_n}) that stands at the position (p_n) stipulated by the permutation function (S_i).

10 5. A device (1) for carrying out a method as claimed in any one of the preceding claims, characterized in that the device has a first code generator (2) that creates the respectively current spreading code (g_n).

15 6. A method for decoding a received digital data stream that was sent encrypted, characterized by the execution of a second permutation procedure (800) that contains a loop with the following steps:

- setting (810) an interval (n) to "1";
- waiting (820) for the end of a predefined hop interval (I_{hop});
- increasing (830) the interval (n) by the value 1;
20 - carrying out a comparison (840) to see whether the current value of the interval (n) is greater than the total number (M) of the elements of a permutation function (S_i) which states the positions of the spreading code (g_n) of a set (G_i) of spreading codes that is to be used for decoding the encrypted digital data stream, wherein alternatively the following takes place:

- 25 - if the comparison has a positive result: resetting of the interval (n) to "1";
 - if the comparison has a negative result: equating the current spreading code (g_n) with the spreading code (g_{p_n}) that stands at the position (p_n) stipulated by the permutation function (S_i).

30 7. A device (3) for carrying out a method as claimed in claim 6, characterized in that the device (3) has a second code generator (4) that produces the current spreading code (g_n).

8. A transmission system that uses orthogonal codes for the modulation, with a device for encrypting a digital data stream, in particular a device (1) as claimed in claim 5, wherein the digital data stream ($d^{(k)}$) is mixed with a spreading code, and with a device for decoding a digital data stream that was transmitted encrypted, in particular a device (3) as claimed in claim 6, characterized in that it has means for

- carrying out encryption,
- carrying out decoding of a digital data stream that was transmitted encrypted.

9. Use of one of the methods mentioned above in a cordless or line-based
10 network.